CA2 ALPCN
2000 P61
c. 2

ALBERTA LEGISLATURE LIBRARY
3 3398 00263 0134

Prairie Coulees Natural Area

Management Plan

Prepared by:
The Prairie Coulees Natural Area Planning Team

January 12, 2000

LEGISLATURE LIBRARY
NOV 23 2001
EDMONTON

Copies of the this management plan may be obtained from:

Public Lands, Sustainable Resource Development
106 Provincial Building
346 3 Street SE
Medicine Hat, AB T1A 0G7
Phone: (403) 529-3677
Fax: (403) 528-5213

or

Parks and Protected Areas, Alberta Community Development
301 Provincial Building
346 - 3 Street SE
Medicine Hat, AB T1A 0G7
Phone: (403) 528-5228
Fax: (403) 528-5212

APPROVAL STATEMENT

The Management Plan for Prairie Coulees Natural Area is the official policy of the Government of Alberta for the management of the Natural Area. The plan provides the direction for management of the Natural Area consistent with provisions in the *Wilderness Areas, Ecological Reserves and Natural Areas Act* and the *Public Lands Act*. Approval of this plan reflects the Government's commitment to conserve the natural features and ecological diversity of the Prairie Coulees Natural Area for present and for future generations.

Prairie Coulees Natural Area is the responsibility of the Parks and Protected Areas Division of Community Development and of the Public Lands of Sustainable Resource Development. Public Lands will be responsible for the day-to-day management and administration of the Natural Area. The Management Team is responsible for making recommendations to the Regional Director of Public Lands Southern Region and to the Area Manager of Parks and Protected Areas. When management decisions are carried out or recommendations rejected, the Regional Director or Area Manager should advise the Management Team or Chairperson the reasons for any changes to, or rejection of, their recommendations.

Lease tenure will be in accordance with the level of stewardship.

W F O'Malley — June 18/2001

Wes Mickey [Date]
Medicine Hat Area Manager
Parks and Protected Areas Division
Community Development

Brian Laing — June 21, 2001

Brian Laing [Date]
Director, Southern Region
Public Lands
Sustainable Resource Development

Oct 18, 2001

Fred Moffatt [Date]
Executive Director, Field Operations
Parks and Protected Areas Division
Community Development

Oct 10, 2001

Roger Marvin [Date]
Executive Director
Public Lands
Sustainable Resource Development

We, the Prairie Coulee Natural Area Planning Team, have prepared and support the following Management Plan.

Dennis Baresco
Society of Grassland Naturalists

Jan 12/00
Date

Normart Bauer
Bauer Farms Ltd.

JAN 12/2000
Date

Bruce Cairns (Chair)
Alberta Agriculture, Food & Rural Development

January 12, 2000
Date

Lewis Diebert
Rancher

Jan 12/2000
Date

Dale Eslinger
Alberta Environment

12 Jan 2000
Date

Wayne Heller
Hargrave Ranching Company Inc.

Jan 12/2000
Date

Prairie Coulee Planning Team cont.

Merv Kopperud
Fish & Game Association

12-1-2000
Date

Stan Krause
Rancher

January 12/2000
Date

Paul Kraychy
GEX Resources Ltd.

January 12, 2000
Date

LeRay Paul
Cypress County

January 12/2000
Date

O'Brien Tarnasky
Alberta Environment

January 12, 2000
Date

Prairie Coulees Natural Area

Management Plan

Introduction 1

1) Eco System Classification 1
- 1.1) Classification 2
- 1.2) Conservation objectives 2
- 1.3) Biophysical overview 2

2) Research & Education Objectives 4

3) Boundaries 4

4) Management Guidelines 6
- 4.01) Access 6
  - 4.01a) Management access 6
  - 4.01b) Public access 6
  - 4.01c) Industrial access 6
  - 4.01d) Education & Research access 6
- 4.02) Signage 6
- 4.03) Horse use 7
- 4.04) Camping 7
- 4.05) Hunting 8
- 4.06) Existing dispositions 8
- 4.07) New surface dispositions 8
- 4.08) Petroleum Industry 8
- 4.09) Fencing 9
- 4.10) Grazing 9
- 4.11) Trapping 9
- 4.12) Non-Game Wildlife Species 9
- 4.13) Fishing 10
- 4.14) Native Species Reintroduction 10
- 4.15) Non-Native Species, Pests, Disease Control 10
- 4.16) Fire 10
- 4.17) Reclamation 10
- 4.18) Archeological and Paleontological Materials 11

5) Inventorying 11

6) Monitoring 11

7) Stewardship & Environment 11

8) Activities Not Addressed in the Plan 11

9) Plan Implementation 12

10) Terms of Reference for the Prairie Coulees Natural Area Management Team 12

11) Plan review & amendment 13

Appendices

1) Statement of Consensus 15

2) Surface Dispositions on Prairie Coulees Natural Area 24

3) Subsurface Dispositions under Prairie Coulees Natural Area 26

4) Maps 28

- Boundaries - Topographic 29
- Surface Dispositions -Grazing Leases 30
- Industrial Activity 31
- Subsurface Dispositions with Surface Access 32
- Subsurface Dispositions without Surface Access 33

5) Grassland Table 34

6) Plant List 35

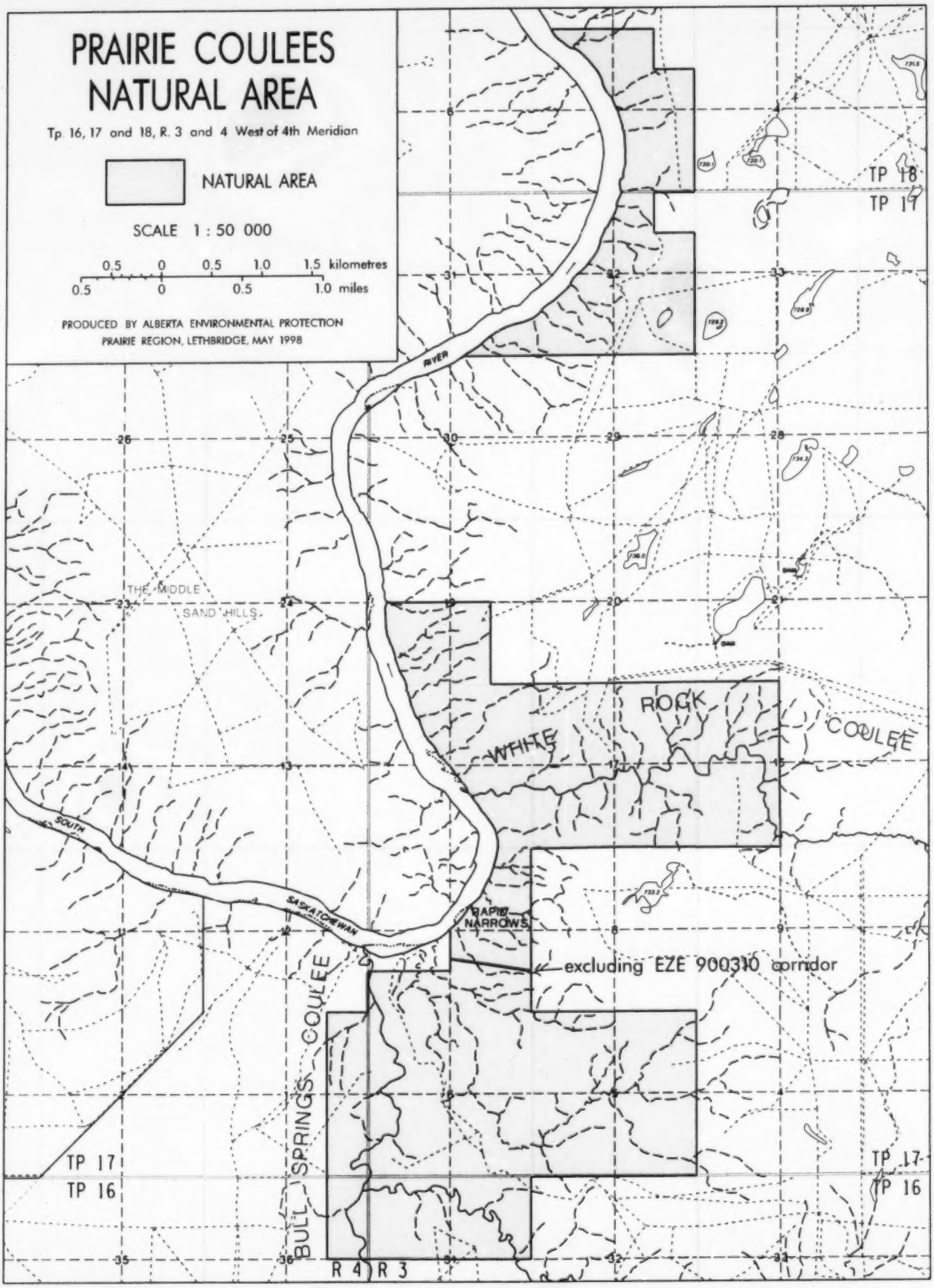
7) Animal Species 43

8) Pertinent Literature 46

Errata

The Branch, Division and Department names have changed in this management plan since it was signed by the Management Team. These names have changed as follows:

Section	Old Branch/Department Name	New Branch/Department Name
Throughout document	Public Lands Division, Alberta Agriculture, Food and Rural Development	Public Lands, Sustainable Resource Development
Page 11; Section 7) Stewardship and Enforcement	Regional Director, Natural Resources Service, Alberta Environment	Area Manager, Parks and Protected Areas Division, Community Development
Page 11/12; Section 8) Activities Not Addressed in Plan	Natural Resources Service, Alberta Environment	Parks and Protected Areas Division, Community Development
Page 12; Section 9) Plan Implementation	Deputy Minister of Alberta Environment	Deputy Minister of Community Development
Page 12; Section 10) Terms of Reference – **Authority**	"Prairie Coulees Natural Area is the responsibility of **Natural Resources Service of Environment** and **Public Lands Division of Alberta Agriculture, Food and Rural Development**"	"Prairie Coulees Natural Area is the responsibility of **Parks and Protected Areas Division of Community Development** and **Public Lands of Sustainable Resource Development**"
Page 12; Section 10) Terms of Reference – **Authority**	"The Management Team is responsible for making recommendations to the Regional **Branch Head of Public Lands Division** and to the **Regional Director of Natural Resources Service**".	"The Management Team is responsible for making recommendations to the **Regional Director of Public Lands** and to the **Area Manager of Parks and Protected Areas Division**".


PRAIRIE COULEES
NATURAL AREA
Tp. 16, 17 and 18, R. 3 and 4 West of 4th Meridian
NATURAL AREA
SCALE 1 : 50 000
0.5 0 0.5 1.0 1.5 kilometres
0.5 0 0.5 1.0 miles
PRODUCED BY ALBERTA ENVIRONMENTAL PROTECTION
PRAIRIE REGION, LETHBRIDGE, MAY 1998
TP 18
TP 17
THE MIDDLE
SAND HILLS
WHITE ROCK COULEE
SOUTH SASKATCHEWAN
RAPID NARROWS
excluding EZE 900310 corridor
BULL SPRINGS COULEE
TP 17
TP 16
TP 17
TP 16
R 4
R 3

Management Plan

Introduction

Prairie Coulees Natural Area has been designated by Order in Council #49/97-1 February 3, 1997 as a representative portion of the river breaks, coulees and uplands associated with the South Saskatchewan River.

The Prairie Coulees Natural Area Management Plan encompasses those lands within the Prairie Coulees Natural Area. The purpose of the management plan is to provide the framework for the operation and management of Prairie Coulees Natural Area by the Management Team.

This management plan has been developed from the Prairie Coulees Candidate Ecological Reserve Statement of Consensus of December 1994 (appendix 1) with input from the public, interest groups and the local community. The views of all who met with the planning team were carefully weighed by the team. All decisions in developing this plan have been made by consensus.

Prairie Coulees Natural Area is not accessible by road. The South Saskatchewan River provides the primary access. Secondary access is comprised of prairie trails, which are suitable for travel in fair-weather conditions only, across lease and deeded lands.

Prairie Coulees Natural Area is under grazing disposition. Consent of the grazing disposition holders must be obtained prior to entering the site regardless of use; ie. public, industrial, research, education, etc.

1) EcoSystem Classification

The Grassland Natural Region of Alberta is comprised of 4 subregions (Foothills Fescue, Northern Fescue, Mixedgrass and Dry Mixedgrass). Prairie Coulees Natural Area is located within the Dry Mixedgrass Subregion of southeastern Alberta. The Dry Mixedgrass Subregion occupies nearly 47,000 km^2 or about 7% of the area of Alberta. This Subregion extends from the U.S. border, north and west to the Mixedgrass and Northern Fescue Subregions. The characteristic vegetation within the Dry Mixedgrass Subregion is a fairly continuous cover of a mixture of mid and short grasses, including: spear grass, wheat grass, June grass and blue grama.

Cultivation, urbanization, road construction and oil and gas development are some of the consumptive uses which to this point have reduced the amount of native prairie. Data show that a significant proportion of the Grassland Natural Region has 50% or less of its native prairie remaining. The largest of the four grassland subregions, the Dry Mixedgrass Subregion, contains about 22,000 km^2 of which 50% or less remains in native prairie. The Natural Area encompasses a

portion of the remaining tracts of native dry mixed grassland in Alberta. (For a more complete breakdown see appendix 5.)

Prairie Coulees Natural Area is part of the system of protected areas established under the Wilderness Areas, Ecological Reserves and Natural Areas Act and the Provincial Parks Act. Seven legislated protected areas currently exist within the Dry Mixedgrass Subregion. Two of these areas are less than 10 km^2 in size: Kinbrook Island Provincial Park and Tillebrook Provincial Park. The remaining five areas are more than 10 km^2 in size and include: Dinosaur Provincial Park, the Milk River Natural Area/Kennedy Coulee Ecological Reserve complex, the Middle Sand Hills National Wildlife Area, Writing-On-Stone Provincial Park and Prairie Coulees Natural Area.

1.1) Classification

Within the WAERNA Act, Natural Areas have two specific intents:

1) to protect sensitive or scenic public land from disturbance.

2) to ensure the availability of public land in a natural state for use by the public for recreation, education or other purpose.

Well-managed ranching is an integral part of Prairie Coulees and ensures that a steward will be on the land to protect the area for future generations. Due to the difficult access and sensitive nature of this area the education and recreation component of this Natural Area will be limited.

1.2) Conservation Objectives

To protect the landscape and maintain the areas ecological processes.

To protect and enhance the native flora and fauna through continued well-managed grazing.

1.3) Biophysical Overview

Prairie Coulees Natural Area is located about 35 km northeast of Medicine Hat along the east side of the South Saskatchewan River in the vicinity of the White Rock and Bull Springs Coulee.

The Natural Area encompasses 4,416 acres (1787.5 hectares) of river valley, coulees and uplands.

The South Saskatchewan River valley is canyon-like in places, one of two deep river canyons that occur in the mixed grasslands. A portion of this canyon forms the western boundary of the Natural Area. The South Saskatchewan River in eastern Alberta is characterized by large valley, badlands and coulee systems. Few extensive river valley

systems containing natural grassland habitats with badland and coulee features remain in Canada. Prairie Coulees Natural Area is a representative portion of this system.

Other notable features in the Natural Area (which are characteristic of those found in portions of the river valley) include:

- habitats such as alkali springs, eroding gravel slopes, badland slopes, ephemeral wetlands, sandy grasslands and coulees).
- presence of alkali springs within the river valley and coulees (particularly Bull Springs Coulee). Alkali springs contain habitats for salt-tolerant plants, including the few-flowered aster.
- wildlife species found typically in badland areas eg. the Violet-green Swallow.
- habitats for Upland Sandpiper, Baird's Sparrow, Grasshopper Sparrow and Western Hognose Snake.
- habitats for species such as Mule Deer, Cliff Swallows, Lark Sparrows, Bull Snakes and Prairie Rattlesnakes.
- plant species, including: low milk vetch, whitlow-grass, Virginia wild rye, nodding umbrella plant, little-seed rice grass, smooth sweety cicely, American pellitory, clammyweed, wollyheads, and silverleaf psoralea. Populations of runcinate-leaved rush-pink also occur in the area.
- protected valley slopes with localized communities of creeping juniper, buckbrush and common wildrose; some small stands of chokecherry and aspen.
- exposed valley slopes with a variety of badland formations (e.g. pseudo karst, pipes, rills, hoodoos, knife-edge divides) and a variety of badland vegetation (e.g. greasewood, sagebrush, skunkbush, povertyweed, long leaved-sage, broomweed, Nuttall's iron plant and scarlet butterfly-weed). There are sandstone and shale bedrock exposures of the Oldman and Foremost Formations; some outcrops of marine Bearpaw shales.
- numerous archaeological sites located throughout the northern portion of the Natural Area. These include concentrations of tipi rings and several rock cairns.
- grazed dry mixed grasslands on plain uplands.
- a variety of slightly saline and saline types from greasewood, salt meadow grass, and salt grass plant communities to foxtail barley and western wheatgrass communities.
- riparian shrub communities with scattered plains cottonwood.

- active floodplains and ancient river terraces; spillway channel. River floodplains contain habitats for plant species including: bushy cinquefoil, common beggar-ticks, prairie cord grass, and Manitoba maple.

2) Research & Education Objectives

Educational use of Prairie Coulees Natural Area is allowed but not encouraged due to the difficult access. Weather conditions such as prairie thunderstorms make the prairie trails impassible in or out of the river valley. Public safety and damage to prairie trails are a concern. Educational use of the area will be with the consent of and in consultation with grazing disposition holders.

Research proposals will be reviewed by the Management Team. Projects that attain the consensus support of the Management Team will be forwarded, with conditions, to the agencies responsible for issuing appropriate permits. Researchers will be required to make available to the Management Team any findings, copies of reports or other information obtained through their research.

3) Boundaries

Prairie Coulees Natural Area is comprised of the following lands:

LANDS	ACRES	HECTARES
N 1/2 31-16-3-W4	320	129.5
LSD's 9 & 16, 36-16-4-W4	80	32.4
LSD's 1,8,9,16, 1-17-4-W4	160	64.8
Sec 5 & 6, 17-3-W4	1280	518
Pt. NE 7-17-3-W4 East of the River	98.9	40
LSD's 3 & 4, 7-17-3-W4	80	32.4
Pt. SE 7-17-3-W4 excluding * EZE 900310 (2.5 acres more or less)	157.5	63.8
W 1/2 16-17-3-W4	323	130.7
Sec 17-17-3-W4	639	258.6
Pt. Sec 18-17-3-W4 East of the River	320.2	129.6
LSD's 2 & 7 of 19-17-3-W4	80	32.4

LANDS	ACRES	HECTARES
Pt. SW 19-17-3-W4 East of the River	110.8	44.9
Pt. SE 31-17-3-W4 South of the River	32.4	13.1
SE 32-17-3-W4	159	64.4
Pt. SW 32-17-3-W4 East of the River	132.2	53.5
Pt. NW 32-17-3-W4 East of the River	20	8.1
LSD 09-32-17-3-W4	39.9	16.1
LSD 10-32-17-3-W4	39.9	16.1
Pt. LSD 15-32-17-3-W4 East of the River	38.2	15.5
Pt. SE 5-18-3-W4 East of the River	141.2	57.1
Pt. NW 5-18-3-W4 East of the River	45.3	18.3
LSD 09- 5-18-3-W4	39.9	16.1
Pt. LSD 10- 5-18-3-W4 East of the River	39.6	16.0
LSD 15- 5-18-3-W4	39.9	16.1
Total	4416.9	1787.5

* EZE 900310 (Water pipeline & access) Shown upon a plan of record in the Department of Environmental Protection at Edmonton as No. 6711T is excluded from Prairie Coulees Natural Area.

The east river bank of the South Saskatchewan is the west boundary of Prairie Coulees Natural Area. The bank is defined as:

> The line between the unvegetated gravel bars and mud flats or aquatic vegetation and the upland or terrestrial vegetation.

The bed and shore of the South Saskatchewan river is outside of the Natural Area. The bed and shore of the river is defined as :

1) those areas which are underwater or

2) are submerged often enough so that the water leaves its mark on the land and

3) do not support terrestrial vegetation.

Signage at key locations (prairie trails and river access points) will be used to encourage compliance with the management plan and to direct public access.

4) Management Guidelines

4.01) Access

4.01a) Management access

Motorized vehicular access including off highway vehicles is permitted on and off trails for management purposes.

4.01b) Public access

Foot access, with grazing disposition holders consent, is the only form of public access permitted on Prairie Coulees Natural Area. Motorized vehicles including off-highway vehicles, bicycles and horses are not permitted for public or recreational use.

4.01c) Industrial access

Vehicular access to be allowed for management purposes on existing industrial dispositions.

4.01d) Education & Research access

Foot access, with grazing disposition holders consent, is the normal means of access. Vehicular access may be allowed for research projects which are supported by the management team and have obtained all permits required. Researchers must carry their written vehicular access and project approval with conditions and permits with them while conducting research on Prairie Coulees Natural Area.

4.02) Signage

Signage at key locations (prairie trail and river access points) will be used to encourage compliance with the management plan and to direct public access. The signage is not meant to advertise the area.

- signage will be located at the points where prairie trails intersect:
    1) LSD 9-5-18-3-W4
    2) LSD 1-5-18-3-W4
    3) LSD 9-32-17-3-W4
    4) LSD 8-32-17-3-W4
    5) LSD 1-32-17-3-W4
    6) LSD 2-32-17-3-W4
    7) LSD 6-19-17-3-W4
    8) LSD 14-17-17-3-W4

9) LSD 14-16-17-3-W4
10) LSD 3-16-17-3-W4
11) LSD 9-5-17-3-W4
12) LSD 8-5-17-3-W4
13) LSD 4-7-17-3-W4
14) LSD 10-31-16-3-W4
15) LSD 11-31-16-3-W4
16) LSD 16- 31-16-3-W4

- and at the point where the South Saskatchewan river meets:
  17) LSD 10-7-17-3-W4

The signage wording will be:

Prairie Coulees Natural Area

Authorized Vehicles Only.

Public Access By Foot Only With The Grazing Disposition Holders Consent. Contact _____at _____ for consent.
Zero Impact Camping Permitted Immediately Along The River.
Please Pack Out All Garbage.
No Fires. Cigarettes & vehicle exhaust can cause fires.
In Case Of Emergency Call 911.
Please Help Protect This Native Grassland.
For further information contact Public Lands Division at 529-3677.

*Signage will also be numbered and include:
- an outline map of Prairie Coulees Natural Area
- the sign's legal location with a "you are here" marker
- a north arrow.

4.03) Horse use

Horses are permitted for management purposes on the Natural Area. Horses are not permitted for recreational use.

4.04) Camping

Zero impact camping is permitted immediately along the river. Camping is not permitted away from the river or above the breaks. All garbage must be packed out. Campfires are not permitted within Prairie Coulees Natural Area. Camp stoves are permitted but not encouraged in the camping area. There will be no visitor facilities developed in the Natural Area.

4.05) Hunting

Hunting is permitted in Prairie Coulees Natural Area as per the seasons in the Wildlife Management Unit.

Hunting is by foot access with grazing disposition holders consent only; motorized vehicles, bicycles and horses are not permitted for public or recreational use.

4.06) Existing dispositions

All existing dispositions on lands included in Prairie Coulees Natural Area as listed in the appendices will be honoured.

Surface dispositions may be issued within Prairie Coulees Natural Area to accommodate the administration of existing uses (ie. the division, transfer or amalgamation of existing dispositions or portions thereof) and will be subject to the same conditions as the original disposition.

4.07) New Surface Dispositions

New surface dispositions including linear developments for activities which are not under existing agreements are not permitted.

New surface dispositions will be issued to accommodate mineral agreements purchased prior to 1985 with no addendum restricting surface access. Mineral agreements issued for Prairie Coulees Natural Area since 1985 have contained an addendum restricting surface access and no new surface dispositions will be issued for these agreements.

4.08) Petroleum Industry

Since 1985 all mineral leases within Prairie Coulees Natural Area were sold with a "no surface access" provision and must be accessed from outside the Natural Area.

Pre-1985 mineral leases as listed in appendix 3 will be honored within the Natural Area. Multiple wells on each pad will be considered as a technique to minimize impact in the area. Existing pads and infrastructure MSL's, ROE's, PLA's, LOC's, are to be used where possible to access undeveloped pre-1985 mineral leases. New surface dispositions will be issued to accommodate pre-1985 mineral leases where necessary. Each development proposal for pre-1985 mineral leases will be evaluated by the Management Team on a site by site basis.

4.09) Fencing

The boundaries of Prairie Coulees Natural Area will not be fenced. Fencing the boundaries is not practicable due to the rough topography. In addition, fencing the boundary would negatively impact both the grazing management and aesthetics of Prairie Coulees Natural Area.

Existing fences within Prairie Coulees Natural Area are the property of the grazing lease holders and will be maintained by them. New cross fences are permitted for management purposes within the natural area with consensus of the Management Team. Cross fences are defined as fences that separate fields within a grazing disposition. All new fences, once approved by the Management Team, are to be constructed and maintained, and removed (if no longer required) at the proponent's expense.

4.10) Grazing

Grazing will continue throughout the Prairie Coulees Natural Area as per the existing grazing lease contracts and the Public Lands Act.

Management of this area as a Natural Area will not impact the tenure of grazing lease agreements. The lessees have demonstrated wise and responsible management of the lands over the years.

Grazing leases are transferrable provided the incoming lessee agrees to abide by this management plan for Prairie Coulees Natural Area.

Each grazing lease holder, upon signing the Prairie Coulees Natural Area Management Plan, will be eligible for a 20-year grazing lease renewal of their grazing lease impacted by the plan. The grazing leases will continue to be eligible for 20-year renewals in the last 5 years of their term, as per Section 6 of the Public Lands Grazing Lease Regulations (Alberta Regulation 432/66 with amendments up to and including Alberta Regulation 291/87).

4.11) Trapping

Trapping is allowed within Prairie Coulees Natural Area for management purposes. Trapping Licences/Permits must be supported by the Management Team and approved by appropriate agencies prior to being issued.

4.12) Non-Game Wildlife Species

Non-game wildlife species are afforded the same protection as outside the Natural Area by the appropriate legislation plus any additional protection afforded by the Natural Areas designation. No extraordinary efforts to control or enhance non-game wildlife species are

contemplated in the Prairie Coulees Natural Area Plan. If additional enhancement or control measures are needed they will be addressed in a plan review.

4.13) Fishing

There are no game fish-bearing waters within Prairie Coulees Natural Area.

4.14) Native Species Reintroduction

Requests or plans for native species reintroduction will be considered by the Management Team when it can be demonstrated that:

a) the reintroduction will not adversely impact rare threatened or significant species or their habitat; and,

b) the re-introduction will not adversely impact the traditional grazing use of the area.

4.15) Non-Native Species, Pests, Disease Control

Requests for control or removal of species considered non-native, exotic or introduced, will be considered by the Management Team. The Team will review species control or removal requests with an understanding that such species should not be present in the Natural Area: however, Management Team decisions will also reflect any other impacts that may result from a control or removal process. Management of the Natural Area will comply with the Noxious Weeds Act.

Requests for pest or disease control will be considered by the Management Team if required to protect the natural features within the Natural Area, private interests outside the site or control required to comply with legislation. Chemical control methods may be used as a last resort.

4.16) Fire

Fire will be controlled on Prairie Coulees Natural Area. Fire control measures will not intentionally disturb the sod. Fire will not be used as a management tool on the Natural Area. Campfires are not permitted within Prairie Coulees Natural Area.

4.17) Reclamation

Minimum disturbance and natural recovery will be used for all reclamation within Prairie Coulees Natural Area. Gravel and sand additions may be considered for erosion control and trail maintenance upon recommendation of the Management Team.

4.18) Archeological and Paleontological Materials

Collection, excavation and disturbance of archeological and paleontological materials are prohibited under the Historical Resources Act unless authorized by the Minister of Community Development. The above activities must also be reviewed by the Management Team and approved by the Regional Branch Head of Public Lands Division Alberta Agriculture, Food & Rural Development and the Regional Director of the Natural Resources Service Environment.

5) Inventorying

Before inventories are initiated, the Management Team must be involved in the development of the terms of reference.

The Management Team recognizes that an up to date biophysical and ecological inventory of Prairie Coulees Natural Area is lacking and that some management decisions are difficult to make without that information. As a result, the Management Team will encourage efforts to initiate inventories.

6) Monitoring

On-site monitoring of Prairie Coulees Natural Area will be the responsibility of the Management Team and, primarily, Public Lands Division AAFRD and or their designate.

A monitoring program will be considered by the Management Team should such a request be received. Support by the Management Team will depend on the program's methodology, funding and relevance to the principles of the Natural Areas Program.

Results and recommendations of monitoring will be reviewed by the Management Team for possible use in managing the area.

7) Stewardship & Enforcement

The grazing disposition holders have been, and will continue to be, the primary stewards of the lands now included in Prairie Coulees Natural Area. Enforcement within the Natural Area will be the responsibility of Public Lands Division AAFRD and Natural Resources Services Environment.

8) Activities not Addressed in the Plan

In the future, activities may be contemplated that the plan has not addressed. For these activities to be considered for approval they must meet the following criteria:

a) be compatible with the overall objectives of the Natural Area.

b) be reviewed and approved by the Management Team, the Regional Branch Head of Public Lands Division AAFRD and the Regional Director of the Natural Resources Service Environment.

9) Plan Implementation

This plan was developed by the Prairie Coulees Natural Area Planning Team appointed by the Deputy Minister of Alberta Environment and is chaired by Public Lands Division of Alberta Agriculture, Food and Rural Development with input from the public, interest groups and the local community. Upon approval of this document the Prairie Coulees Natural Area Management Team will ensure the implementation of the plan and will guide future strategies.

10) Terms of Reference for Prairie Coulees Management Team

Authority: Prairie Coulees Natural Area is the responsibility of Natural Resources Service of Environment and Public Lands Division of Alberta Agriculture, Food and Rural Development. Public Lands will be responsible for the day-to-day management and Administration of the Natural Area. The Management Team is responsible for making recommendations to the Regional Branch Head of Public Lands Division and to the Regional Director of the Natural Resources Service. When management decisions are carried out or recommendations rejected, the Branch Head or Regional Director should advise with the Management Team or Chairperson the reasons for any changes to, or rejection of, their recommendations.

Purpose: The Management Team is mandated to protect the landscape and maintain the area's ecological processes and to foster the protection and enhancement of the native flora and fauna through continued well-managed grazing.

Function: To coordinate:
- implementation of the management plan
- the monitoring and evaluation of implementation progress
- determine future strategies
- reviews of the plan as required.

Membership: Will consist of:
- one representative from Public Lands Division
- major leaseholders, plus a representative of smaller leaseholders; to a maximum of five leaseholders
- one representative from Cypress County
- one representative from Grasslands Naturalists
- one representative from Natural Resources Service

Membership changes, other than the above, require unanimous consent of the Management Team.

The Management Team will elect the Chair.

Elections for the Management Team Chair will be held every three years.

Meeting Schedule:

Individual team members, through the chairperson, may request a meeting at any time to discuss any issue of importance concerning the Natural Area. Amendments to the plan require the consensus of the Management Team. Notes of all meetings will be kept by a government-supplied secretary and distributed to Team members. "The Land Manager" will issue an update once a year to the Prairie Region Environmental Resource Committee on the status of the Natural Area lands.

Public Participation:

The Team will attempt to accommodate requests from members of the public or any non-member public group on subjects of interest concerning the Natural Area. This could include presentations to the Team, requests for information or management policy, and concerns related to management of the Natural Area in general.

11) Plan Review & Amendment

An internal operational review of the management plan will be held by the Management Team within one year of implementation to ensure that the plan is working. Subsequent reviews will be held at the call of the Management Team with a minimum of one review every ten years. Amendments to the plan will be addressed during the review process and require the consensus of the Management Team.

Appendices

Appendix 1

The signatories to the following statement of consensus were appointed by the Deputy Minister of Alberta Environment to:

- determine the boundary for Prairie Coulees
- discuss and make recommendations on various management issues as they relate to the site
- organize and hold an open house to provide the general public with an opportunity to express their views on proposed boundaries and any contentious management issues
- finalize recommendations and submit them to the Minister

The following Statement of Consensus outlines the terms and conditions of the agreement to form and manage Prairie Coulees Natural Area.

We the Prairie Coulees Candidate Ecological Reserve Planning Team have prepared and support the following Statement of Consensus.

Dennis Baresco
Society of Grassland Naturalists — DATE: Dec. 7/94

Norman Bauer
Bauer Farms Ltd. — DATE: Dec 5/94

Bruce Cairns, Chair
Public Lands, Alberta Agriculture
Food & Rural Development — DATE: Dec 19/94

Jim Clark
Fish & Wildlife Services
Environmental Protection — DATE: Dec 15/94

Joyce Gould
Parks Services
Environmental Protection — DATE: Dec 13/94

Harry Hargrave
Hargrave Ranching Company — DATE: Nov 25, 94

Merv Kopperud
Medicine Hat Fish & Game
Association — DATE: Dec 7/94

LeRay Pahl
M. D. of Cypress #1 — DATE: Dec 8/94

We the Prairie Coulees Candidate Ecological Reserve Planning Team have prepared and support the following Statement of Concensus.

Lewis Deibert, Rancher
Ex-officio

Dec 7/94
DATE

Lorne Krause
Rancher & Disposition Holder
Ex-officio

Dec 7/94
DATE

Paul Kraychy
GEX Resources Ltd.
Consultative

Dec. 12/94
DATE

Statement of Consensus

Prairie Coulees Candidate Ecological Reserve Planning Team

We, the members of the Prairie Coulees Candidate Ecological Reserve Planning Team, have achieved consensus on the items listed in this document. This consensus is the result of months of working together, listening, negotiating and compromise by the Team.

The Prairie Coulees Candidate Ecological Reserve Planning Team is committed to proceeding with the management plan process.

The Team recognizes that the site, with over 60 registered surface dispositions and interests, plus numerous subsurface interests, would be unique within the Ecological Reserves legislation and believes it can be made to work. To our knowledge, no other candidate area or Ecological Reserve contains this intensity of integrated use.

The points of consensus are linked. Alteration or omission of any of the points may invalidate the consensus as a whole.

The Alberta Wilderness Association withdrew from the Prairie Coulees Ecological Reserve Planning Committee July 22, 1994.

The views of all who met with the planning team were weighed by the team in its' deliberations.

All planning team decisions have been made by consensus.

The following points of consensus are the basis of our agreement and will be used to prepare the management plan.

Points of Consensus

1) Boundary Consensus

1a) We have consensus that the following lands be included in the Prairie Coulees Ecological Reserve:

LANDS	ACRES
N 1/2 31-16-3-W4	320.
LSDs 9 & 16, 36-16-4-W4	80
LSDs 1,8,9,16, 1-17-4-W4	160.
Sec 5 & 6, 17-3-W4	1280
Pt. NE 7-17-3-W4 East of the River	98.9
LSDs 3 & 4, 7-17-3-W4	80.
Pt. SE 7-17-3-W4 excluding EZE 900310 (2.5 acres more or less)	157.5
W 1/2 16-17-3-W4	323.
Sec 17-17-3-W4	639.
Pt. Sec 18-17-3-W4 East of the River	320.2
LSDs 2 & 7 of 19-17-3-W4	80.
Pt. SW 19-17-3-W4 East of the River	110.8
Pt. SE 31-17-3-W4 South of the River	32.4
SE 32-17-3-W4	159.
Pt. SW 32-17-3-W4 East of the River	132.2
Pt. NW 32-17-3-W4 East of the River	20.
LSD 09-32-17-3-W4	39.9
LSD 10-32-17-3-W4	39.9
Pt. LSD 15-32-17-3-W4 East of the River	38.2
Pt. SE 5-18-3-W4 East of the River	141.2
Pt. NW 5-18-3-W4 East of the River	45.3
LSD 09- 5-18-3-W4	39.9

LANDS	ACRES
Pt. LSD 10- 5-18-3-W4 East of the River	39.6
LSD 15- 5-18-3-W4	39.9
Total	4,416.9

1b) We have consensus that the following lands be excluded from the Candidate Prairie Coulees Candidate Ecological Reserve and that these lands be deleted from PNT 850152 (Ecological Reserve Wilderness Area Potential){No 300 series PNTs or equivalent to be put on the lands excluded from the candidate ecological reserve so long as the grazing dispositions affected are held by the current disposition holders, shareholders or descendants}:

LANDS	ACRES
Pt LSDs 5 & 6 of Sec 7-17-3-W4 South of the River	43.5
Pt SE 7-17-3-W4 under EZE 900310	2.5 more or less
SE 16-17-3-W4	160.0
Pt. NW 19-17-3-W4 East of the River	139.6
LSD 10-19-17-3-W4	40.0
LSD 15-19-17-3-W4	40.0
NW 29-17-3-W4	159.0
LSD 02-30-17-3-W4	40.0
LSD 07-30-17-3-W4	40.0
SW 30-17-3-W4	160.0
Pt. NW 30-17-3-W4 Southeast of the River	101.8
Pt. NE 30-17-3-W4 Southeast of the River	157.9
Pt. SE 25-17-4-W4 East of the River	27.6
Pt. NE 25-17-4-W4 East of the River	5.4
TOTAL	1,117.3

2) Management Plan

The Prairie Coulees Ecological Reserve Management Plan will encompass those lands included in the Prairie Coulees Ecological Reserve boundary as determined by consensus of the planning team.

The Prairie Coulees Candidate Ecological Reserve Planning Team is committed to proceeding with the management plan process.

3) Access

3a) Management Access

Motorized vehicular access permitted on and off trails for management purposes.

3b) Public Access

No motorized vehicular access.

No bicycles permitted.

Foot access permitted with disposition holders consent.

3c) Industrial access

Will be addressed in the management plan.

4) Horse Use

Horses allowed for management purposes.

Horses not allowed for recreational use.

5) Camping

Zero impact camping permitted along the river but not encouraged (garbage packed out).

Camping not permitted on grasslands.

6) Hunting

Hunting to be allowed in the ER as per the seasons in the Wildlife Management Unit.

Hunting is needed to manage wildlife. Management of wildlife will both protect flora within the ecological reserve and control problems associated with the size of the site, proximity of the unhunted Suffield Block to the west and cultivated fields to the east.

7) Existing Dispositions

Honour all existing dispositions on Lands included in the Prairie Coulees Ecological Reserve.

7a) Petroleum Industry

Each development proposal to be evaluated on a site by site basis.

Minimize disturbance in the general area inside and just outside the Ecological Reserve Boundary.

Consider multiple wells on each pad to minimize impact in the area.

Existing pads and infrastructure MSLs, ROEs, PLAs & LOCs to be used to access facilities and associated mineral rights which are under disposition.

7b) Grazing

Grazing to continue throughout the Prairie Coulees Ecological Reserve as per the existing grazing lease contracts.

Management of this area as an ecological reserve will not impact the tenure of grazing lease agreements. The lessees have demonstrated wise and responsible management of the lands over the years and any lease would be transferrable as part of an operating ranch or farm unit, provided the incoming lessee agrees to abide by the management plan for the reserve.

Each grazing lease holder, upon signing the Prairie Coulees Ecological Reserve Management Plan, will be eligible for a 20 year grazing lease renewal of their grazing lease impacted by the plan. The grazing leases will continue to be eligible for 20 year renewals in the last 5 years of their term, as per Section 6 of the Public Lands Grazing Lease Regulations.

7c) Trapping

Cottonwood depredation by beaver is a problem along the South Saskatchewan River. Trapping permitted for management purposes.

8) Fishing

Fishing not applicable to this site.

9) RRMC Consensus

Prairie Coulees Candidate Ecological Reserve Planning Team Statement of Consensus to be forwarded to the Regional Resource Management Committee when signed.

10) Open House

An open house will be held in Medicine Hat. Site and date T.B.A.

11) Name of the Site

The name of the site to be: "Prairie Coulees Ecological Reserve", once designated.

Appendix 2

Surface Dispositions on Prairie Coulees Natural Area

Disposition Types:

CNT - Consultative Notation
EZE - Easement
GRL - Grazing Lease
LOC - Licence of Occupation
MSL - Mineral Surface Lease
NAA - Order In Council Natural Area
PLA - Pipeline Agreement
PNT - Protective Notation
ROE - Right of Entry
TFA - Temporary Field Authority
TPA - Trapping Agreement

Existing Dispositions:

Activity ID	Client
CNT 870227	AAFRD
CNT 960321	AAFRD
CNT 970046	AAFRD
EZE 900310	Hargrave Ranching Co. Ltd.
GRL 32587	Bauer Farm Ltd.
GRL 32645	Krause, Stanley A.
GRL 32756	Hargrave Ranching Co. Ltd.
GRL 33088	Diebert, Gordon
LOC 3664	Petro-Canada
LOC 800750	177293 Canada Ltd.
LOC 971734	GEX ResourcesLtd
MSL 6970	Petro-Canada
MSL 7350	Petro-Canada
MSL 7445	Petro-Canada
MSL 7672	Petro-Canada
MSL 8722	177293 Canada Ltd.
MSL 9801	177293 Canada Ltd.
MSL 10491	Petro-Canada

MSL 10964	Petro-Canada
MSL 11078	GEX Resources Ltd.
MSL 11346	Imperial Oil Resources Limited
MSL 11803	Petro-Canada
MSL 790333	Petro-Canada
MSL 791416	Petro-Canada
MSL 820771	Petro-Canada
MSL 890857	GEX Resources Ltd.
MSL 890858	GEX Resources Ltd.
MSL 891231	Petro-Canada
MSL 891232	Petro-Canada
MSL 900896	GEX Resources Ltd.
MSL 910750	GEX Resources Ltd.
MSL 920873	GEX Resources Ltd.
MSL 95088	Petro-Canada
MSL 972574	GEX Resources
NAA 970001	EP, OIC Natural Area (Prairie Coulees)
PLA 4790	Petro-Canada
PLA 5169	Petro-Canada
PLA 5178	Petro-Canada
PLA 5310	177293 Canada Ltd.
PLA 5442	Petro-Canada
PLA 5452	177293 Canada Ltd.
PLA 8487	177293 Canada Ltd.
PLA 5591	Imperial Oil Resources Limited
PLA 760755	GEX Resources Ltd.
PLA 800106	Petro-Canada
PLA 810386	Petro-Canada
PLA 810473	Petro-Canada
PLA 820435	Petro-Canada
PLA 890543	GEX Resources Ltd.
PLA 890680	Petro-Canada
PLA 900590	GEX Resources Ltd.
PLA 910567	GEX Resources Ltd.
PLA 950599	Petro-Canada
PNT 840272	AAFRD
ROE 790003	Petro-Canada
TFA 980001	GEX Resources Ltd.
TPA 2897	Czember, Lyle

Appendix 3

Subsurface Dispositions under Prairie Coulees Natural Area

Subsurface Dispositions with Surface Access

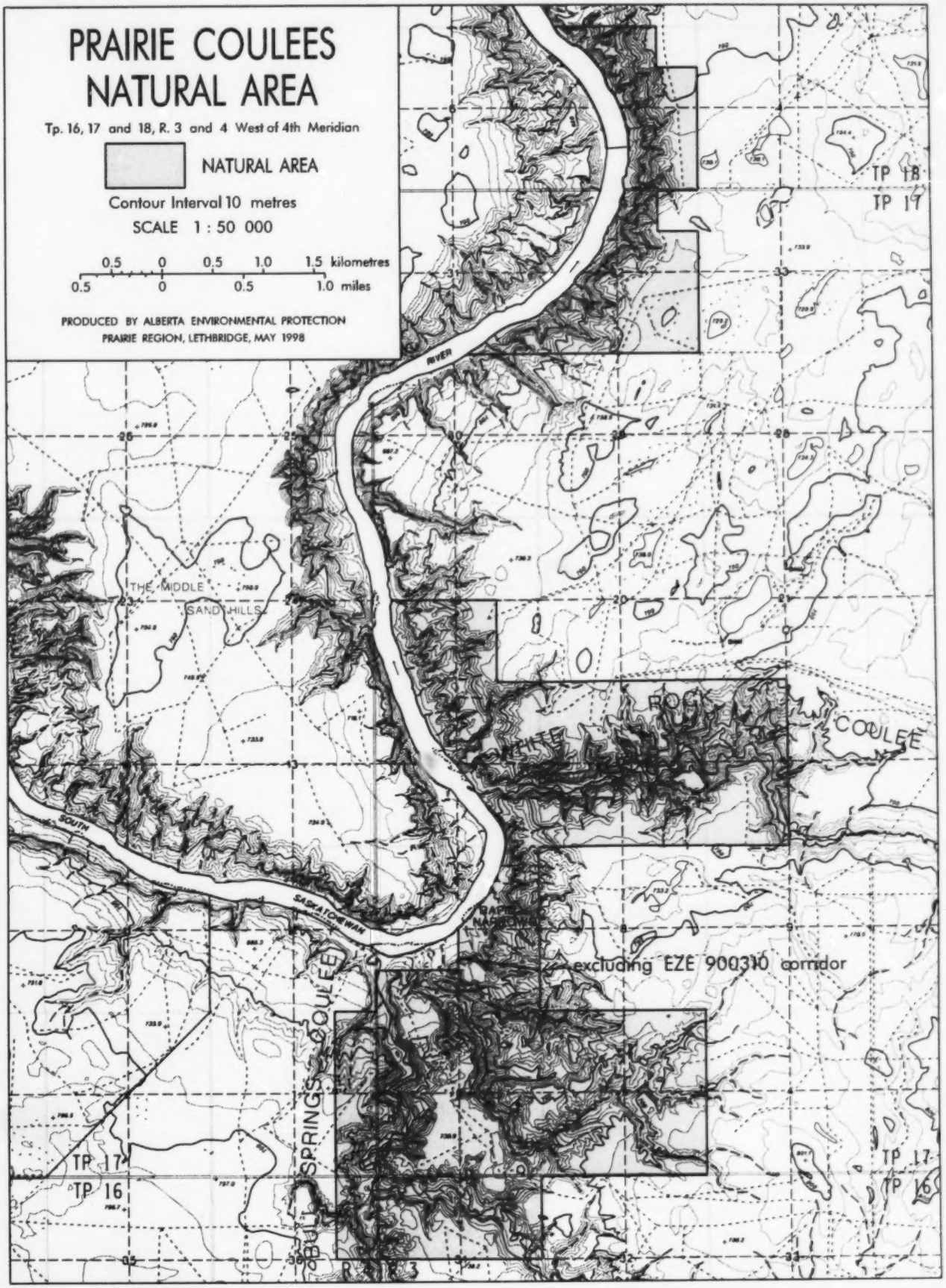
Number	Year Issued	Company	Area within NA	Legal Description
31292	1973	Bearcat	639 acres	Sec 17-17-3-W4
39652	1985	Crestar	80 acres	LSD's 9&16 of 36-16-4-W4
40217	1975	Petro-Canada	80 acres	LSD's 2&7 of 19-17-3-W4
321	1957	Amerada	32.4 acres 429.2 acres	Pt SE 31-17-3-W4 east of river Pt Sec 32 -17-3-W4 east of river & excluding LSD 16
366	1979	Imperial	320 acres	N ½ 31-16-3-W4
694	1961	Crestar	80 acres	LSD's 9& 16 of 36-16-4-W4
1283	1971	Petro-Canada	320 acres	N ½ 31-16-3-W4
1284	1971	Petro-Canada	80 acres	LSD's 9& 16 of 36-16-4-W4
1308	1971	Petro-Canada	2719.5 acres	Sec 5,6&17, Pt SE7, W ½ 16, NE 18 all in 17-3-W4 plus LSD's 1,8,9&16 of 1-17-4-W4

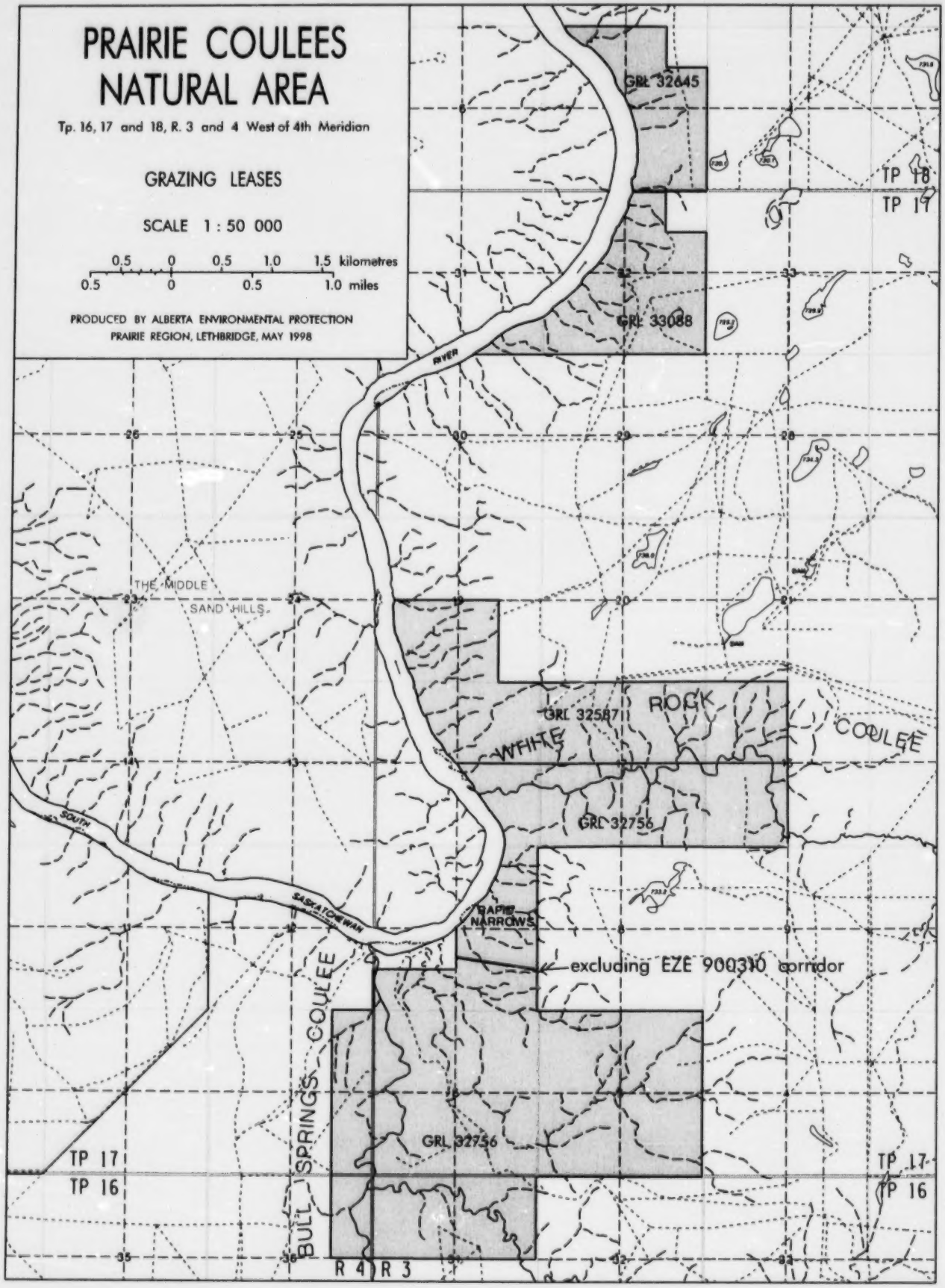
Subsurface Dispositions without Surface Access

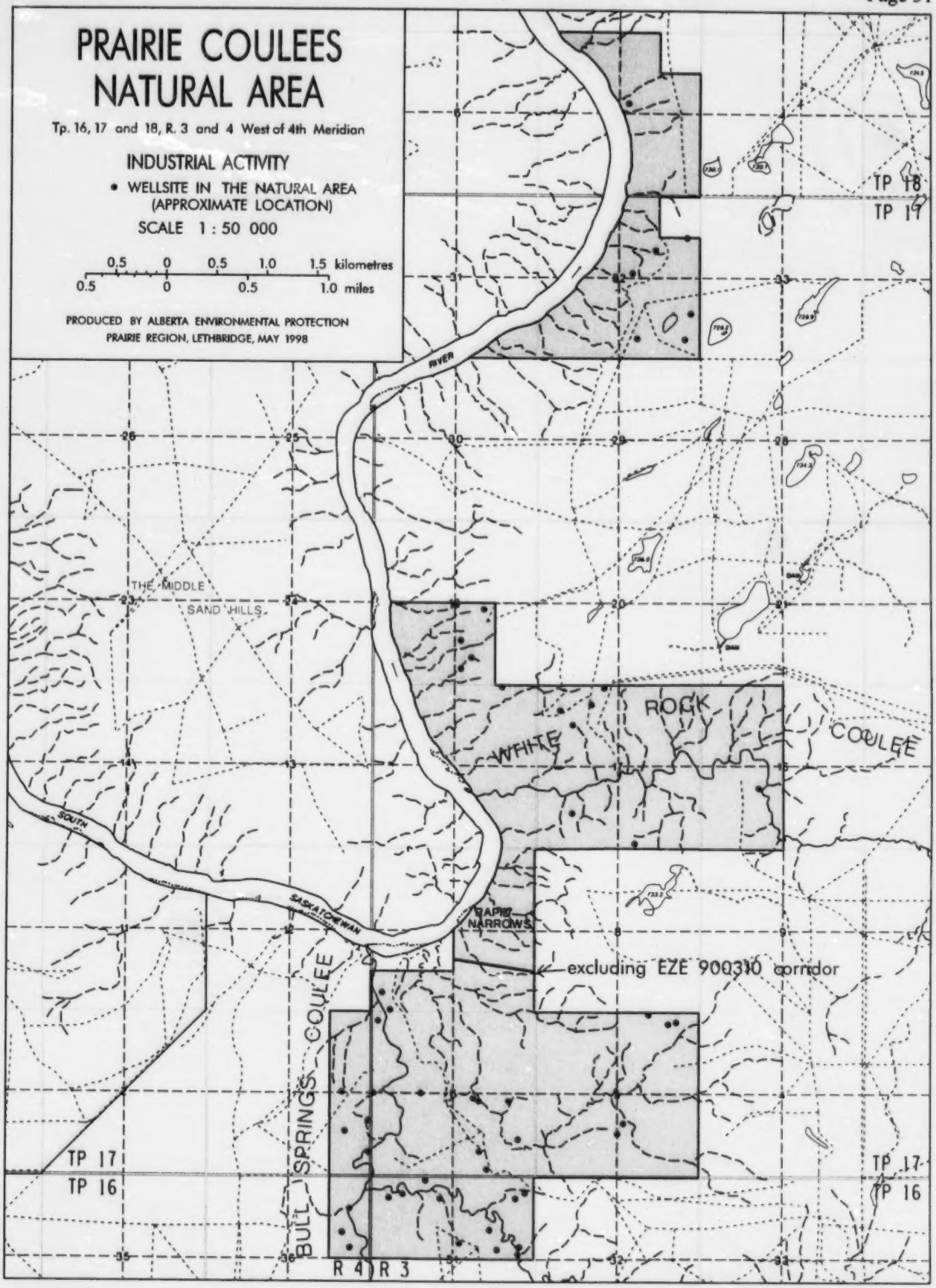
Number	Year Issued	Company	Area within NA	Legal Description
0488120299	1988	Gascan	320 acres	N ½ 31-16-3-W4
0489030202	1989	Arbitron	336.4 acres	Pt Sec 7- 17-3-W4
0490040274	1990	Arbitron	429.2 acres	Pt Sec 32 -17-3-W4 east of river & excluding LSD 16
0490070040	1990	Arbitron	190.8 acres	LSD's 2&7 and Pt SW 19-17-3-W4
0490070042	1990	Arbitron	429.2 acres	Pt Sec 32 -17-3-W4 east of river & excluding LSD 16
0491010042	1991	Arbitron	32.4 acres	Pt SE 31-17-3-W4 east of river
0491080448	1991	Arbitron	305.9 acres	Pt SE & NW 5 east of the river, LSD's 9, 10 & 15 of 5 all in 18-3-W4
0493080029	1993	Arbitron	336.4 acres	Pt Sec 7- 17-3-W4
0493080030	1993	Arbitron	320.2 acres	Pt Sec 18-17-3-W4 east of river
0493090531	1993	Gascan	32.4 acres	Pt SE 31-17-3-W4 east of river
0493090532	1993	Gascan	80 acres	LSD's 9&16 of 36-16-4-W4

Appendix 4

Disposition Maps


PRAIRIE COULEES
NATURAL AREA
Tp. 16, 17 and 18, R. 3 and 4 West of 4th Meridian
NATURAL AREA
Contour Interval 10 metres
SCALE 1 : 50 000
0.5 0 0.5 1.0 1.5 kilometres
0.5 0 0.5 1.0 miles
PRODUCED BY ALBERTA ENVIRONMENTAL PROTECTION
PRAIRIE REGION, LETHBRIDGE, MAY 1998
TP 18
TP 17
THE MIDDLE
SANDHILLS
ROCK
COULEE
SOUTH
SASKATCHEWAN
RAPID
excluding EZE 900310 corridor
SPRINGS
COULEE
TP 17
TP 16
TP 17
TP 16


PRAIRIE COULEES
NATURAL AREA
Tp. 16, 17 and 18, R. 3 and 4 West of 4th Meridian
GRAZING LEASES
SCALE 1 : 50 000
0.5 0 0.5 1.0 1.5 kilometres
0.5 0 0.5 1.0 miles
PRODUCED BY ALBERTA ENVIRONMENTAL PROTECTION
PRAIRIE REGION, LETHBRIDGE, MAY 1998
GRL 32645
GRL 33088
GRL 32587
GRL 32756
GRL 32756
excluding EZE 900310 corridor
TP 18
TP 17
TP 17
TP 16
TP 17
TP 16
R 4
R 3
THE MIDDLE SAND HILLS
WHITE ROCK COULEE
BULL SPRINGS COULEE
SOUTH SASKATCHEWAN RIVER
FRENCH NARROWS


PRAIRIE COULEES
NATURAL AREA
Tp. 16, 17 and 18, R. 3 and 4 West of 4th Meridian
INDUSTRIAL ACTIVITY
• WELLSITE IN THE NATURAL AREA
(APPROXIMATE LOCATION)
SCALE 1 : 50 000
0.5 0 0.5 1.0 1.5 kilometres
0.5 0 0.5 1.0 miles
PRODUCED BY ALBERTA ENVIRONMENTAL PROTECTION
PRAIRIE REGION, LETHBRIDGE, MAY 1998
TP 18
TP 17
RIVER
THE MIDDLE
SAND HILLS
WHITE ROCK COULEE
SOUTH SASKATCHEWAN
RAPID NARROWS
excluding EZE 900310 corridor
BULL SPRINGS COULEE
TP 17
TP 16
TP 17
TP 16
R 4
R 3

PRAIRIE COULEES NATURAL AREA

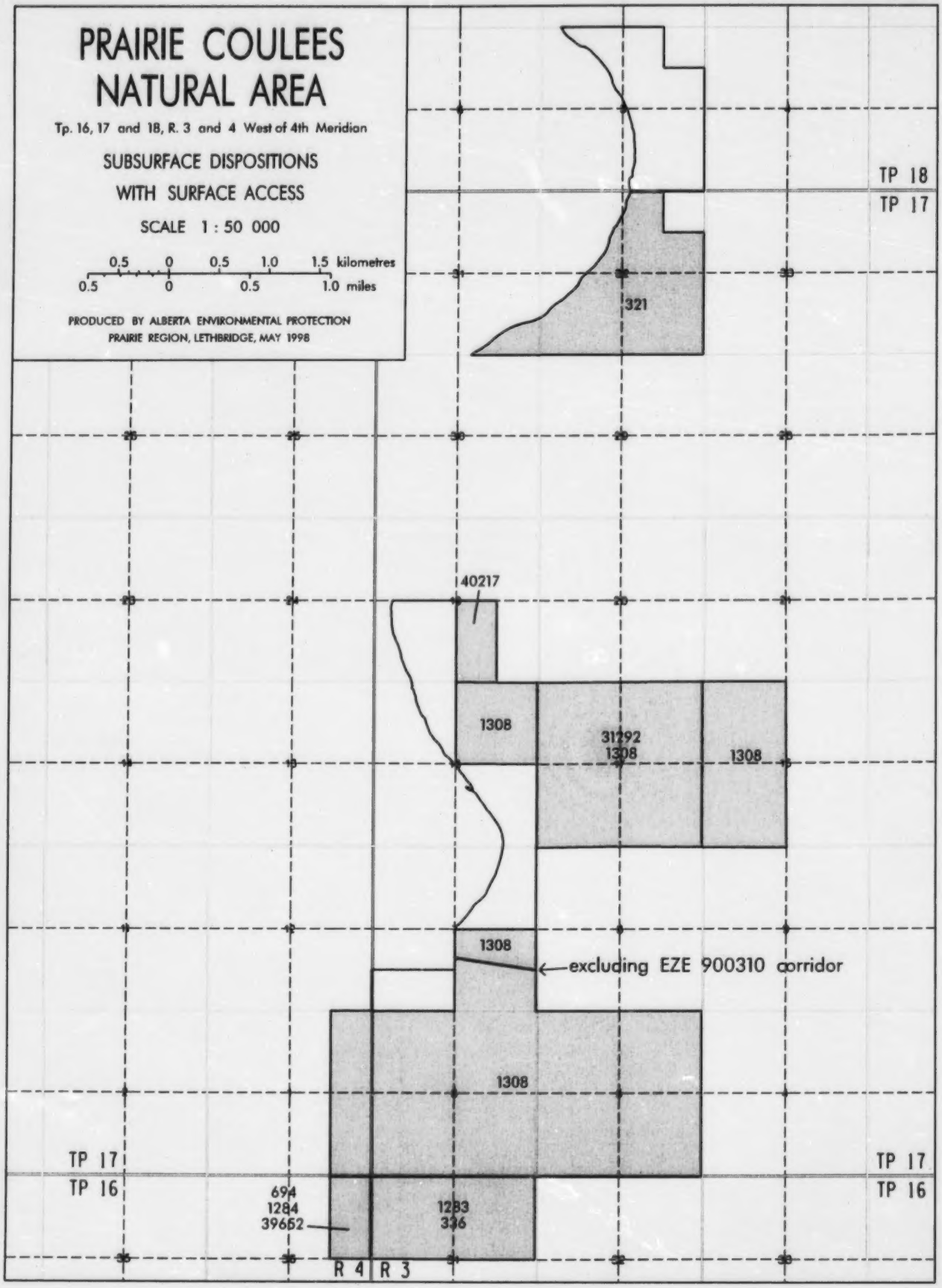
Tp. 16, 17 and 18, R. 3 and 4 West of 4th Meridian

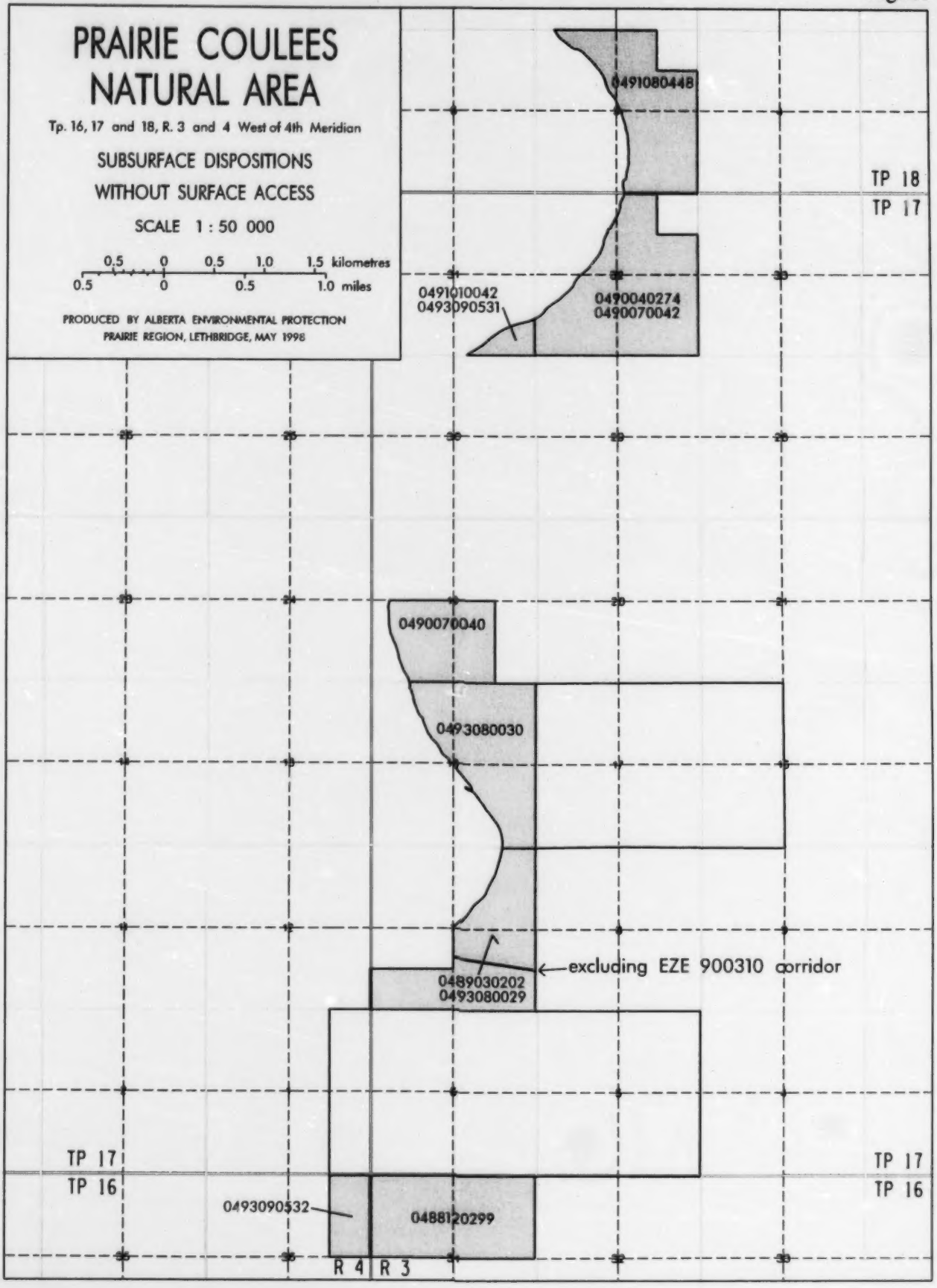
SUBSURFACE DISPOSITIONS
WITH SURFACE ACCESS

SCALE 1 : 50 000

0.5 0 0.5 1.0 1.5 kilometres
0.5 0 0.5 1.0 miles

PRODUCED BY ALBERTA ENVIRONMENTAL PROTECTION
PRAIRIE REGION, LETHBRIDGE, MAY 1998




PRAIRIE COULEES
NATURAL AREA
Tp. 16, 17 and 18, R. 3 and 4 West of 4th Meridian
SUBSURFACE DISPOSITIONS
WITHOUT SURFACE ACCESS
SCALE 1 : 50 000
0.5 0 0.5 1.0 1.5 kilometres
0.5 0 0.5 1.0 miles
PRODUCED BY ALBERTA ENVIRONMENTAL PROTECTION
PRAIRIE REGION, LETHBRIDGE, MAY 1998
0491080448
TP 18
TP 17
0491010042
0493090531
0490040274
0490070042
0490070040
0493080030
excluding EZE 900310 corridor
0489030202
0493080029
TP 17
TP 16
TP 17
TP 16
0493090532
0488120299
R 4
R 3

Appendix 5

Grassland Table

Table 4. Native Prairie Remaining in portions of the Grassland Natural Region of Alberta (AFRD 1992, ERCB 1992)

Proportion of native prairie remaining*	Dry Mixedgrass		Foothills Fescue		Mixedgrass		Northern Fescue		Total	
	km²	%	km²	%	km²	%	km²	%	km²	%
76 - 100%	15526	33	2044	14	3792	20	497	3	21859	23
51 - 75%	6483	14	536	3	810	4	3294	22	11123	11
Sub-total	*22009*	*47*	*2580*	*17*	*4602*	*24*	*3791*	*25*	*32982*	*34*
26 - 50%	6161	13	1094	7	936	5	4149	27	12340	13
1 - 25%	2394	5	1277	9	1912	10	---	---	5583	6
0 - 25%	1692	4	6296	42	2443	13	3271	21	13702	14
0%	11948	25	2020	14	7732	40	---	---	21700	23
Sub-total	*22195*	*47*	*10687*	*72*	*13023*	*68*	*7420*	*48*	*53325*	*56*
Data unavailable	2772	6	1621	11	1552	8	4173	27	10118	10
Total	46976	100	14888	100	19177	100	15384	100	96425	100

* Township data categories are 0-25%, 26-50%, 51-75% and 76-100%. Quarter-section data categories are 0%, 1-25%, 26-50%, 51-75% and 76-100%

NOTE: Due to the precision levels of the data, especially township data, figures are estimates only. Federal crown lands are not included in these calculations.

Appendix 6

Prairie Coulees Natural Area Plant List

Following is a listing, in alphabetical order by common name, of all plants observed in the 1987 field survey of the proposed Middle Sand Hills Ecological Reserve. Common names are derived principally from Budd & Best (1969), Moss (1983), and Hitchcock & Cronquist (1973). Latin names follow Moss (1983).

Following the Latin names are the rankings from the Alberta Natural Heritage Information Centre's *Vascular Plant Tracking and Watching Lists February 16, 1999* (* indicates that the plant species is not on either of the tracking or watching lists).

.

Elements are evaluated and ranked on their status (globally and state/provincially) using a system developed by The Nature Conservancy which is in use throughout North America. Ranking is usually based primarily on the number of occurrences, since that is frequently the only information available. Information, such as population size and trend, life history and reproductive strategies and current threats is used when available. The ranks are defined as:

RANK (G=Global; S=Alberta)

G1	S1:	≤5 occurrences or only a few remaining individuals.
G2	S2	6-20 occurrences or with many individuals in fewer occurrences.
G3	S3:	21-100 occurrences may be rare and local throughout its range, or in a restricted range (may be abundant in some locations or may be vulnerable to extirpation because of some factor of its biology).
G4	S4:	apparently secure under present conditions, typically >100 occurrences but may be fewer with many large populations; may be rare in parts of its range, especially peripherally.
G5	S5:	demonstrably secure under present conditions, >100 occurrences, may be rare in parts of its range, especially peripherally.
GU	SU:	status uncertain often because of low search effort or cryptic nature of the element; possibly in peril, unrankable, more information needed.
GH	SH:	historically known, may be relocated in the future.

Other codes are:

E:		exotic species established, may be native to nearby regions
HYB:		hybrid taxon that is recurrent in the landscape
P:		potentially exists; may have occurred historically (but having not been persuasively documented)
Q:		taxonomic questions or problems
R:		reported but lacking sufficient documentation to accept or reject
RF:		reported false
T_:		rank for a sub-specific taxon
X:		believed to be extirpated
G?	S?:	not yet ranked
_?:		rank questionable

Plant Species

alfalfa - Medicago sativa*
alyssum, desert - Alyssum desertorum*
anemone, cut-leaved - Anemone multifida*
arrow-grass, seaside - Triglochin maritima*
arrowhead, arumleaf - Sagittaria cuneata*
aspen - Populus tremuloides*
aster, hoary - Machaeranthera canescens*
aster, few-flowered - Aster pauciflorus S1, G4
aster, golden - Heterotheca villosa*
aster, smooth - Aster laevis*
aster, western willow - Aster hesperius*
aster, white prairie - Aster ericoides sens. Lat.*
avens, three-flowered - Geum triflorum*

barley, foxtail - Hordeum jubatum*
bean, golden - Thermopsis rhombifolia*
beardtongue, smooth blue - Penstemon nitidus*
bedstraw, northern - Galium boreale*
beggar-ticks, tall - Bidens frondosa*
birch, water - Betula occidentalis*
bladder-pod, silvery - Lesquerella arenosa*
bluebell - Campanula rotundifolia*
bluebur, western - Lappula occidentalis*
bread-root, Indian - Psoralea esculenta*

Plant species cont.

broom-rape, clustered - Orobanche fasciculata*
broomweed - Gutierrezia sarothrae*
buckbrush - Symphoricarpos occidentalis*
buffaloberry, thorny - Shepherdia argentea*
buttercup, celery-leaved - Ranunculus sceleratus*
buttercup, creeping - Ranunculus cymbalaria*
butterfly-weed, scarlet - Gaura coccinea*

cactus, ball - Coryphantha vivipara*
cactus, prickly-pear - Opuntia polyacantha*
candelabra, fairy - Androsace septentrionalis*
catchfly, Menzies - Silene menziesii*
cattail, common - Typha latifolia*
chamaerhodos - Chamaerhodos erecta*
cherry, choke - Prunus virginiana*
chickweed, mouse-ear - Cerastium arvense*
cinquefoil, bushy - Potentilla paradoxa S2 G5
cinquefoil, early - Potentilla concinna*
cinquefoil, graceful - Potentilla gracilis*
cinquefoil, Pennsylvanian - Potentilla pensylvanica*
cinquefoil, rough - Potentilla norvegica*
clammyweed - Polanisia dodecandra S1 G4
clematis, western - Clematis ligusticifolia*
clover, purple prairie - Petalostemon purpurem*
clover, sweet - Melilotus sp.*
clover, white prairie - Petalsotemon candidum*
club-moss, little - Selaginella densa*
cocklebur - Xanthium strumarium*
collomia - Collomia linearis*
comandra, pale - Comandra pallida*
coneflower, prairie - Ratibida columnifera*
corydalis, golden - Corydalis aurea*
cottonwood, plains - Populus deltoides*
cress, reflexed rock - Arabis holboellii var. retrofracta*
cress, purple rock - Arabis divaricarpa*
crocus, prairie - Erysimum inconspicuum*
crowfoot, white water - Ranunculus circinatus*
cryptanthe, northern - Cryptantha macounii*
cudweed - Gnaphalium uliginosum*
cymopterus, plains - Cymopterus acaulis*

Plant species cont.

dandelion, common - Taraxacum officinale*
dandelion, false - Agoseris glauca*
dropseed, sand - Sporobolus cryptandrus*

endolepis - Atriplex suckleyi S3 G4?
evening-primrose, white - Oenothera nutallii*
evening-primrose, yellow - Oenothera biennis*
everlasting, cushion - Antennaria dimorpha*
everlasting, low - Antennaria aprica*

fairybells - Disporum trachycarpum*
fern, bladder - Cystopteris fragilis*
flax, wild blue - Linum lewisii*
flax, yellow - Linum rigidum*
fleabane, cut-leaved - Erigeron compusitus*
fleabane, shaggy - Erigeron pumilus*
fleabane, tufted - Erigeron caespitosus*
foxtail, water - Alopecurus aequalis*

goatsbeard - Tragopogon dubius*
goldenrod, Canada - Solidago canadensis*
goldenrod, dune - Solidago decumbens*
goldenrod, Missouri - Solidago missouriensis*
goldenrod, smooth - Solidago gigantea*
goldenweed, lance-leaved - Haplopappus lanceolatus*
gooseberry, northern - Ribes oxyacanthoides*
goosefoot, Fremont's - Chenopodium fremontii*
goosefoot, oak-leaf - Chenopodium salinum*
goosefoot, slimleaf - Chenopodium pratericola*
goosefoot, spear-leaved - Monolepis nuttalliana*
grass, alkali blue - Poa juncifolia*
grass, alkali cord - Spartina gracilis*
grass, barnyard - Echinochloa crus-galli*
grass, blue-eyed - Sisyrinchium montanum*
grass, blue grama - Bouteloua gracilis*
grass, crested wheat - Agropyron cristatum*
grass, green needle - Stipa viridula*
grass, tufted hair - Deschampsia cespitosa*
grass, Indian rice - Oryzopsis hymenoides*
grass, interior blue - Poa interior*

Plant species cont.

grass, June - Koeleria macrantha*
grass, Kentucky blue - Poa pratensis*
grass, little-seed rice - Oryzopsis micrantha S2 G5
grass, northern wheat - Agropyron dasystachym*
grass, prairie cord - Spartina pectinata S1 G5
grass, porcupine - Stipa curtiseta*
grass, rough hair - Agrostis scabra*
grass, salt - Distichlis stricta*
grass, salt-meadow - Puccinellia nuttalliana*
grass, sand - Calamovilfa longifolia *
grass, Sandberg's blue - Poa sandbergii*
grass, slender wheat - Agropyron trachycaulum*
grass, spear - Stipa comata*
grass, western wheat - Agropyron smithii*
grass, awned northern wheat - Agropyron albicans*
greasewood - Sarcobatus vermiculatus*
groundsel, prairie - Senecio canus*
gumweed - Grindelia squarrosa*

hawksbeard, runcinate-leaved - Crepis runcinata*
hawksbeard, western - Crepis occidentalis S2 G5
hemp, Indian - Apocynum cannabinum*
horsetail, common - Equisetum arvense*
horsetail, smooth - Equisetum laevigatum*
horseweed - Erigeron canadensis*

ironplant, Nuttall's - Machaeranthera grindelioides*
ironplant, spiny - Haplopappus spinulosus*

juniper, creeping - Juniperus horizontalis*

knotweed, Douglas' - Polygonum douglasii*
knotweed, field - Polygonum aviculare*
knotweed, pale - Polygonum lapathifolium*

licorice, wild - Glycyrrhiza lepidota*
lily, sand - Mentzelia decapetala*
loco-weed, early yellow - Oxytropis sericea*

mallow, scarlet - Sphaeralcea coccinea*

Plant species cont.

maple, Manitoba - Acer negundo*
milkweed, showy - Asclepias speciosa*
milkwort, sea - Glaux maritima*
milfoil, spiked water - Myriophyllum exalbescens*
mint, wild - Mentha arvensis*
mousetail, awned - Myosurus aristatus*
mousetail, common - Myosurus minimus*
muhly, plains - Muhlenbergia cuspidata*
mustard, tansy - Descurainia sp.*

nettle, common - Urtica dioica*

onion, prairie - Allium textile*
osier, red - Cornus stolonifera*
owl-clover, yellow - Orthocarpus luteus*

parsley, prairie - Lomatium foeniculaceum*
pellitory, American - Parieteria pensylvanica S2 G5
peppergrass, common - Lepidium densiflorum*
phlox, moss - Phlox hoodii*
plagiobothrys - Plagiobothrys scouleri*
plant, pin-cushion - Navarretia minima*
plantain, common - Plantago major*
plantain, Pursh's - Plantago patagonica*
plantain, saline - Plantago eriopoda*
povertyweed - Iva axillaris*
puccoon, yellow - Lithospermum incisum*
pygmyflower, western - Androsace occidentalis*

redtop - Agrostis stolonifera*
rocket, small-flowered - Erysimum inconspicuum*
rose, common wild - Rosa woodsii*
rose, prairie - Rosa arkansana*
rubberweed, Colorado - Hymenoxys richardsonii*
rue, veiny meadow - Thalictrum venulosum*
rush, three-square - Scirpus pungens*
rush, toad - Juncus bufonius*
rush, wire - Juncus balticus*
rush-ink, runcinate-leaved - Stephanomeria runcinata S2 G5

Plant species cont.

rye, Canada wild - Elymus canadensis*
rye, Virginia wild - Elymus virginicus S1 G5

sage, biennial - Artemisia biennis*
sage, long-leaved - Artemisia longifolia*
sage, pasture - Artemisia frigida*
sage, prairie - Artemisia ludoviciana*
sage, salt - Atriplex nuttallii*
sagebrush - Artemisia cana*
saltbush, silver - Atriplex argentea*
saltbush - Atriplex subspicata*
sandwort, blunt-leaved - Moehringia lateriflora*
saskatoon - Amelanchier alnifolia*
sea-blite, western - Suaeda calceoliformis*
sedge, graceful - Carex praegracilis*
sedge, low - Carex stenophylla*
sedge, thread-leaved - Carex filifolia*
silverberry - Elaeagnus commutata*
silverweed - Potentilla anserina*
skeleton-weed - Lygodesmia juncea*
skunk-bush - Rhus trilobata*
sneezeweed - Helenium autumnale*
Solomon's seal, star-flowered - Smilacina stellata*
speedwell, hairy - Veronica peregrina*
spike-rush, creeping - Eleocharis palustris*
spike-rush, needle - Eleocharis acicularis*
spurge, ridge-seeded - Euphorbia glyptosperma*
star, blazing - Liatris punctata*
stinkweed - Thlaspi arvense*
strawberry, wild - Fragaria virginiana*
sunflower, common annual - Helianthus annuus*
sunflower, common tall - Helianthus nuttallii*
susan, brown-eyed - Gaillardia aristata*
sweet-cicely, smooth - Osmorhiza longistylis S2 G5

thistle, Canada - Cirsium arvense*
thistle, Russian - Salsola kali*
thistle, wavy-leaved - Cirsium undulatum*
townsendia, low - Townsendia exscapa S1S2 G5

Plant species cont.

umbrellaplant, nodding - Eriogonum cernuum S2 G5
umprellaplant, yellow - eriogonum flavum*
umbrellawort, hairy - Mirabilis hirsuta*

vervain, carpet - Verbena bracteata*
vetch, ascending purple milk - Astragalus striatus*
vetch, cushion milk - Astragalus gilviflorus*
vetch, low milk - Astragalus lotiflorus S2 G5
vetch, Missouri milk - Astragalus missouriensis*
vetch, narrow-leaved milk - Astragalus pectinatus*
vetch, purple milk - Astragalus agrestis*
vetch, tufted milk - Astragalus spatulatus*
vetch, two-grooved milk - Astragalus bisulcatus*
vetch, wild - Vicia americana*
violet, early blue - Viola adunca*
violet, western Canada - Viola canadensis*
violet, yellow prairie - Viola nuttallii*

water-plantain, narrow-leaved - Alisma gramineum*
whitlow-grass, Carolina - Draba reptans S1S2 G5
whitlow-wort, low - Paronychia sessiliflora*
willow, Bebb - Salix bebbiana*
willow, sandbar - Salix exigua*
willow, peach-leaved - Salix amygdaloides*
willow, yellow - Salix lutea*
winterfat - Eurotia lanata*
woolly-heads - Psilocarphus elatior S2 G4Q
wormwood - Artemisia absinthium*
wormwood, plains - Artemisia campestris*

yarrow, common - Achillea millefolium*

Appendix 7

Animal Species thought to inhabit the Prairie Coulees area

Below is a listing, in alphabetical order by common name, of the animal species mentioned in the 1987 Proposed Middle Sand Hills Ecological Reserve Biophysical Overview.

Following the common names are the rankings from "The Status of Alberta Wildlife, Wildlife Management Division Report of December 1996.
Rankings:

Red: Current knowledge suggests that these species **are at risk**.

Blue: Current knowledge suggests that these species **may be at risk**.

Yellow: These are **sensitive species** that are not currently believed to be at risk, but may require special management to address concerns related to naturally low populations, limited provincial distributions, or demographic/life history features that make them vulnerable to human related changes to the environment.

Species ranked **yellow A** are those which there has been concern expressed over long term declines in numbers.

Species ranked **yellow B** are those which are:

1) naturally rare but not in decline;
2) naturally rare and have clumped breeding distributions: or
3) associated with habitats or habitat elements that are, or may be, deteriorating.

Green: These species are **not considered at risk**. Their populations are stable and their key habitats are generally secure at present.

Birds

American Goldfinch	green
American Kestrel	green
Baird's Sparrow	yellow A

Birds cont.

Black-billed magpie	green
Brewers Blackbird	green
Brown-headed Cowbirds	green
Brown Thrasher	yellow A
Cedar Waxwing	green
Chestnut-collared Longspur	green
Cliff Swallow	green
Common Nighthawk	green
Common Yellowthroat	green
Eastern Kingbird	green
Ferruginous Hawk	blue
Golden Eagle	yellow B
Grasshopper Sparrow	yellow B
Great Horned Owl	green
Horned Lark	green
Lark Sparrow	yellow B
Least Flycatcher	green
Long Billed Curlew	blue
Merlin	green
Mountain Bluebird	green
Prairie Falcon	yellow A
Red-winged Blackbird	green
Rough-winged Swallows	?
Savannah Sparrow	green
Say's Phoebe	green
Sprauge's Pipit	blue
Rock Wren	yellow B
Rufous-sided Towhee	green
Upland Sandpiper	yellow A
Vesper Sparrow	green
Violet-green Swallow	green
Western Meadowlark	yellow A
Yellow-breasted Chat	yellow B
Yellow Warbler	green

Mammals

American beaver	green
Coyote	green
Mule Deer	green

Mammals cont.

Nuttall's Cottontail	yellow B
Pronghorn	yellow B

Reptiles

Bull Snake	yellow B
Prairie Rattlesnake	blue
Western Hognose Snake	blue

Amphibians

Great Plains Toad	red

Appendix 8

Pertinent Literature

1998 - Plant Species of Special Concern (Alberta Natural Heritage Information Centre).

1997 - The Grassland Natural Region of Alberta (Alberta Environmental Protection Natural Resource Service Recreation & Protected Areas Division Natural Heritage Protection and Education Branch)

1997 - Common Plants of the Western Rangelands Volumes I & II (Tannas).

1997 - Draft Ross Grassland Natural Area Management Plan (Alberta, Agriculture ,Food and Rural Development Public Lands Division & Environmental Protection Natural Resource Service).

1996 - The Status of Alberta Wildlife, (Alberta Environmental Protection Wildlife Management Division Report December).

1996 - Special Places-Alberta's Grassland Natural Region (Government of Alberta).

1995 - A Framework for Alberta's Special Places (Government of Alberta).

1995 - Special Places 2000: Alberta's Natural Heritage Policy & Implementation Plan (Alberta Environmental Protection).

1992 - Operational Management Plan Milk River Natural Area and Kennedy Coulee Ecological Reserve (Alberta Forestry Lands and Wildlife Public Lands Services).

1992 - Weeds of the West (Whitson et. al.).

1988 - Guide to Range Condition and Stocking Rates for Alberta Grasslands1988 (Wroe, Smoliak Adams, Willms, and Anderson).

1987 - The proposed Middle Sandhills Ecological Reserve a Biophysical Overview (Cottonwood Consultants Ltd.).

1983 - Flora of Alberta (Moss).

1979 - Budd's Flora of the Canadian Prairie Provinces(Looman & Best 1979).

1973 - Flora of the Pacific Northwest (Hitchcock & Cronquist).

1971 - Prairie Grasses (Best, Looman and Campbell).

1969 - Wild Plants of the Canadian Prairies (Budd & Best).